Viper SC/SC+™

Command Line Interface (CLI) and Script Reference Manual

PN 009-5008-202 Rev F
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Compatible with Viper Firmware Revision V3.7_R201311181700

REVISION HISTORY

REV	DATE	REVISION DETAILS
C	11/17/2009	Added Section 4.1.7: Importing/Exporting a Configuration File
D	11/23/2009	Added Commands for setting SNMP Parameters in Appendix A.1 Example Script File #1
E	1/12/2009	Added Listen Before Talk command In Example Script File #1
F	6/10/2014	Added many additional CLI commands and restructured document

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1 Introduction

The Viper Command Line Interface (CLI) can be used to setup the Viper operating parameters without using the built in web pages. The CLI uses text based commands to configure either a local or remote Viper. The CLI will use less bandwidth than the built in web pages and can be the preferred option for configuring/reconfiguring a remote Viper over the air.

Every setting that is available on the Viper web pages can be configured via the CLI. This document and the attached sample script files describe how to program the most commonly used functions and parameters. Contact Calamp Technical support for more information on any specific command or parameter not listed in this document.

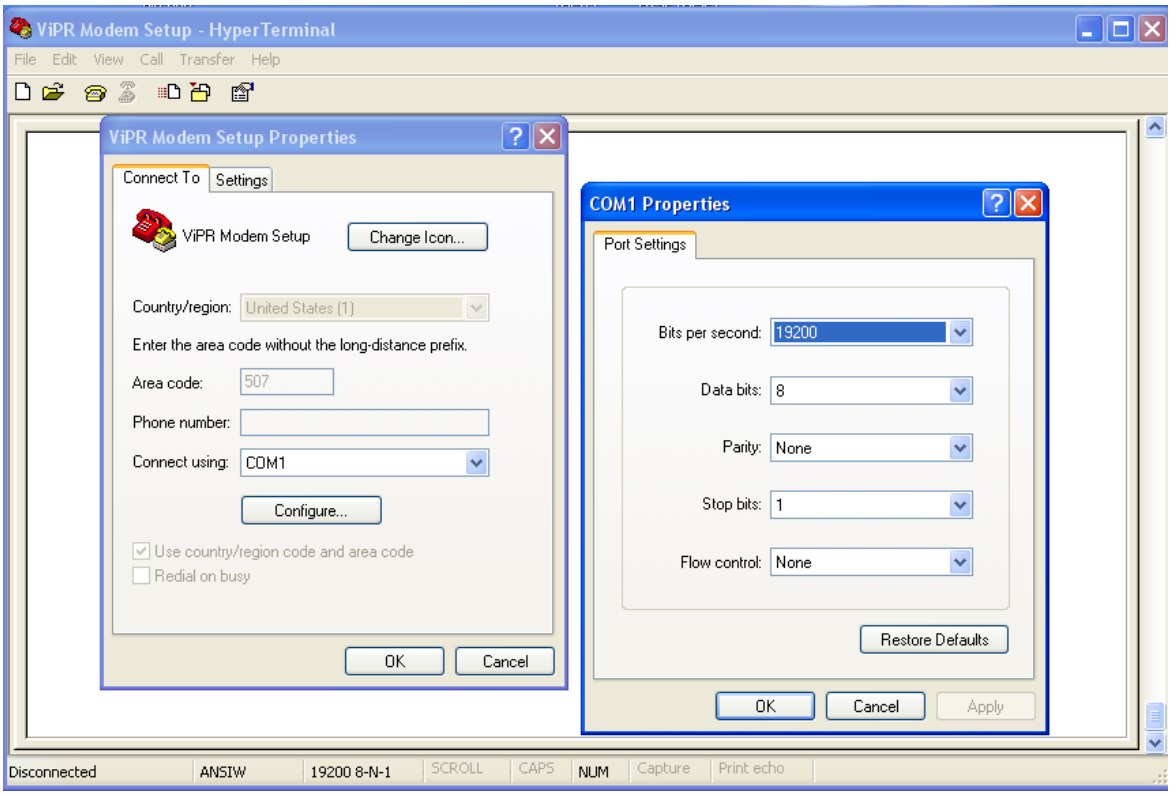
The CLI commands contained in this document are compatible with Viper firmware version V3.7_R201311181700. Many of the listed CLI commands will work with newer or older firmware revisions, but compatibility is not guaranteed.

2 Accessing the CLI

The CLI can be accessed using either of the following two different methods: 1) Connecting through the Setup Port via an RS-232 cable. 2) Telneting into the Viper using an Ethernet connection.

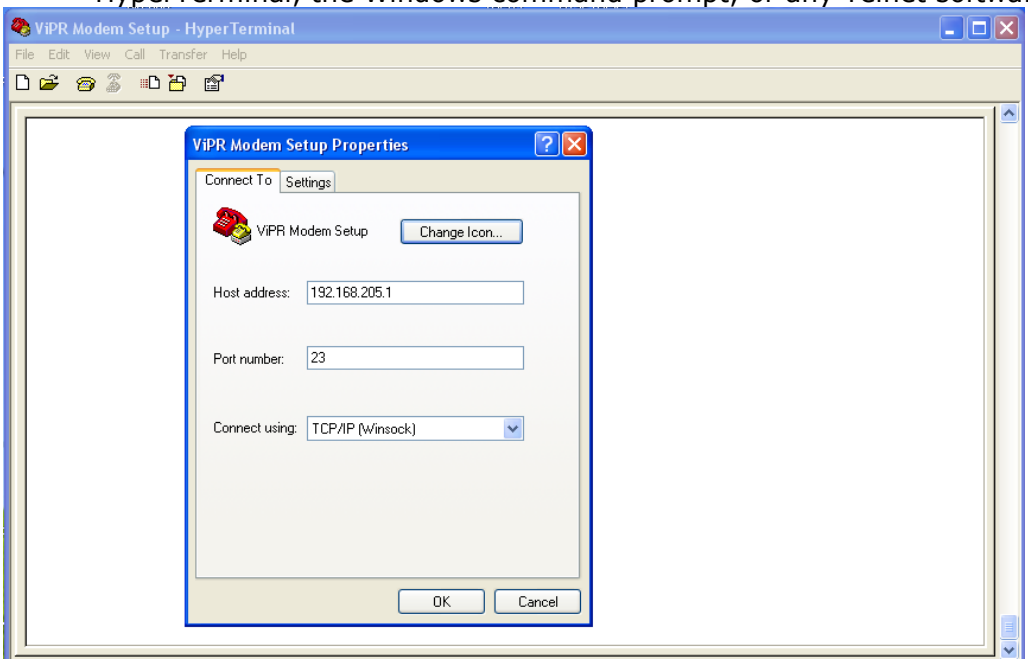
2.1 Setup Port

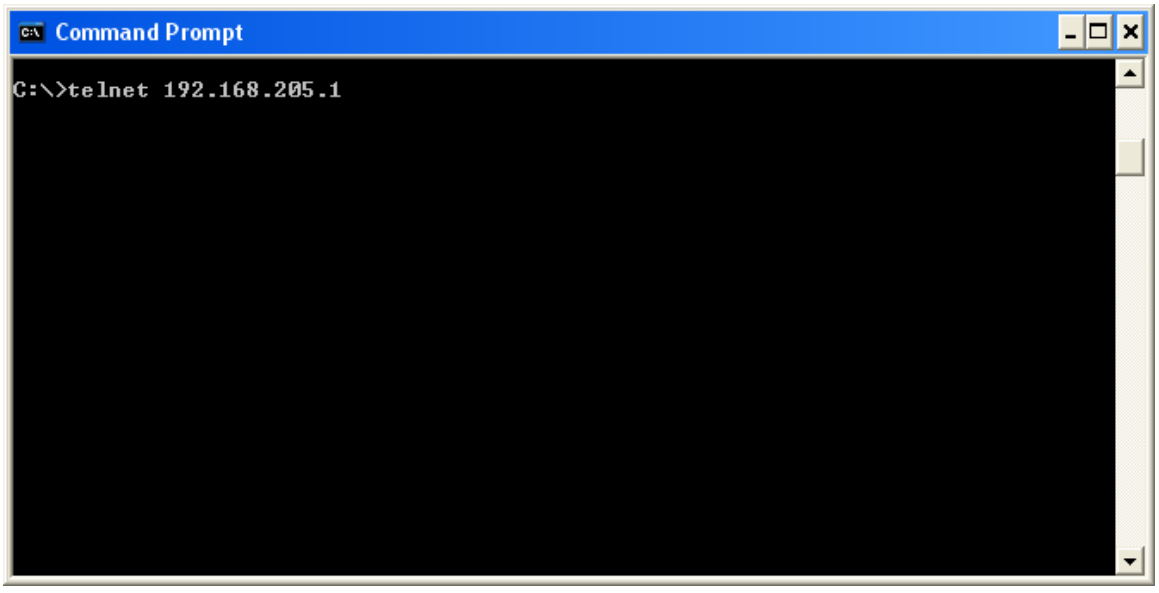
The Setup Port is defaulted to act as a CLI server. A user can connect to the CLI by connecting a PC with HyperTerminal to the Viper's Setup Port with a serial cable. The default baud rate is 19200 (8-N-1).



2.2 Telnet

You can access the CLI over the Ethernet or RF interface by connecting to port 23 using HyperTerminal, the Windows command prompt, or any Telnet software.





3 Logging into the CLI

Once you are connected to the CLI you will be asked for your user name and password. The user name and password is the same as the one used to access the Viper web pages.

4 CLI commands

The following sections list some basic CLI commands. See the attached script files for parameter instructions, usage, and examples. All the commands listed in the following sections or in the attached sample script files can be used individually in the CLI or combined into a script file.

4.1.1 Get

The 'get' command can be used to read a parameter. The 'get' command can be used with a wildcard * operator.

Example:

```
get ip.eth.1.address      (returns the IP address of the Viper)
get ip*                   (returns all the parameters that start with 'ip')
```

4.1.2 Set

The 'set' command can be used to write a parameter. Some settings are only writable when the Viper is configured for Router mode. To write these mode specific settings the Viper must first be set for router mode. The settings must be saved and the Viper must be reset. Then the Viper will grant write access to these mode specific parameters.

Example:

```
set ip.eth.1.address = 192.168.205.1
set id.stationName = Pump#1
```

4.1.3 Save

The save command saves the current Viper settings. The save command will need to be executed after setting any parameters.

Example:

```
save
```

4.1.4 Stationreset

The stationreset command resets the Viper and will need to be executed before some parameters will take effect. The user should execute the `save` command first, then execute the `stationreset` command.

Example (Reset immediately):

```
save
stationreset
```

When executing scripts from Device Outlook, the radio will need to communicate back to DeviceOutlook to indicate that the script was completed successfully. In these situations, the radio should not reset immediately, but should instead be setup on a timer to reset in 10 minutes using the following command sequence.

Example (Reset in 10 minutes):

```
save
set station.autoreset.timeout.minutes = 10
set station.autoreset.enable = 1
```

In the example above, the `save` command should be executed before the `station.autoreset` commands. This will force the Viper to reset a single time only because the `station.autoreset` parameters will revert to their previously disabled values when the Viper resets.

4.1.5 Default

Return Viper to the Default Settings. The 'default' command accepts the wildcard character *.

```
default <setting>
```

Examples:

```
default ip.eth.1.address   (Sets Ethernet IP Address to default)
default ts.com.2.*         (Sets all settings in the Com port to the default)
default *                  (All Viper settings are set to the default)
```

4.1.6 Password

Change password used to access the Viper web page or CLI. This command must be entered twice.

```
_password <old_password> <new_password>
```

Examples:

```
_password ADMINISTRATOR MyNewPass#1   (Enter command first time)
_password ADMINISTRATOR MyNewPass#1   (Enter command again to confirm)
```

4.1.6.1 Script

The script command can be used to run a predefined script. A script is a text file containing other CLI commands. The script file can be loaded into the Viper using an FTP program. The script command is case sensitive. The –c option tells the Viper to continue with the script even if an error is encountered.

```
script <filename.ext> -c
```

Example:

```
script myscript.txt -c
```

5 CLI Parameters Organized by Web Page

5.1 Home

5.1.1 Home - Unit Status

Parameter	CLI Command
Station Name	id.stationName Example: get id.stationName 200-id.stationName= "Base#1" 200 1 parameters found
Model Number	id.catalogNumber Example: get id.catalogNumber 200-id.catalogNumber= "**140-5028-502**" 200 1 parameters found
LAN IP Address & MAC	ifconfig Example: ifconfig 200- 200-Ethernet Interface 1 [Up] 200- IP Address.....: **192.168.50.146** 200- Netmask.....: 255.255.255.0 200- Broadcast.....: 192.168.50.255 200- MTU.....: 1500 200- MAC Address.....: **00:0A:99:80:0D:3C** 200- 200- 200-RF Interface [Up] 200- IP Address.....: 10.128.0.1 200- Netmask.....: 255.255.255.0 200- Broadcast.....: 10.128.0.255 200- MTU.....: 1500 200- MAC Address.....: 80:00:01 200- 200- 200-Default Gateway.....: 192.168.50.254 200
Uptime	status Example: status 200-Time since reset [DD:HH:MM:SS]: **1:01:08:29** (90509) 200-Date and time: 2007-10-02 13:08:14 200-PCB Temperature: 89.6 F 200-PCB Temperature Alarm On Thresold: 185.0 F 200-PCB Temperature Alarm Off Thresold: 113.0 F 200-Heap Space Remaining: 2452 KBytes 200-DC Input Voltage: 24.1 V 200-Debug jumper: Not installed

<table>
<tr><td>Modem Firmware Version</td><td>banner

Example:
banner
200+DATARADIO Viper (HW:PCB-280-03470) (CodeBase:ipr_3.7_R201311181700)

The following command returns the current firmware revision in the RF deck, the RF deck serial number, and hardware version number.

radio.version

Example:
radio.version
200-Radio Information
200-Build Date: . . . . Sep 24 2012
200-Build Time: 16:04:48
200-Copyright:. . . . . Copyright 2012 DRL
200-Firmware Version: . ViPR-03_20-R
200-ASD Data Map: . . . 2.0
200-Radio Circuit Board: 0.10
200-Radio Serial Number: 641462
200-Radio Model Number: 823-5098-452</td></tr>
<tr><td>Unit Status</td><td>fault.webString

Example:
get fault.webstring
200-fault.webString= " Ok "
200 1 parameters found</td></tr>
<tr><td>DC Input Voltage

Transceiver Temperature</td><td>radio.diag

Example:
radio.diag
200-Transceiver Temperature : 34.0 C
200-Present PA Reverse Power : 0.0 Watts
200-Present PA Forward Power : 0.0 Watts
200-PA Reverse Power : 0.0 Watts
200-PA Forward Power : 1.5 Watts
200-RX Synthesizer Control Voltage : 0.8 Volts
200-TX Synthesizer Control Voltage : -3.0 Volts
200-PA Supply Voltage : 8 Volts
200-Present PA Supply Current : 0.0 Amps
200-PA Supply Current : 0.9 Amps
200-PA Temperature : 38.0 C
200 Supply Voltage : 14 Volts</td></tr>
<tr><td>Acknowledge Unit Status</td><td>fault.clear</td></tr>
</table>

5.1.2 Home - RF Status

Parameter	CLI Command

Stats	`radio.show`
	
	Example:
	`radio.show`
	`200-State : Ready`
	`200-Receiver tuning : Pass`
	`200-Build Date : Sep 24 2012`
	`200-Build Time : 16:04:48`
	`200-Copyright : Copyright 2012 DRL`
	`200-Firmware Version : ViPR-03_20-R`
	`200-RX Frequency range : min 928.000000 max 960.000000 MHz`
	`200-TX Frequency range : min 928.000000 max 960.000000 MHz`
	`200-Current TX Frequency : 931.637500 MHz`
	`200-Current RX Frequency : 931.637500 MHz`
	`200-Current TX Sampling Frequency : 90 KHz`
	`200-Current RX Sampling Frequency : 96 KHz`
	`200-Supported modulations : Up to 16 FSK`
	`200-Transmit Power range : min 1.0 max 8.0 Watts`
	`200-Current Transmit Power Level : 8.0 Watts`
	`200-Transceiver Temperature : 86.0 F`
	`200-Present PA Reverse Power : 0.0 Watts`
	`200-Present PA Forward Power : 0.0 Watts`
	`200-PA Reverse Power : 0.9 Watts`
	`200-PA Forward Power : 8.5 Watts`
	`200-RX Synthesizer Control Voltage : -2.4 Volts (range: -15 to 5)`
	`200-TX Synthesizer Control Voltage : 1.8 Volts (range: -15 to 5)`
	`200-PA Supply Voltage : 13 Volts`
	`200-Present PA Supply Current : 0.0 Amps`
	`200-PA Supply Current : 1.8 Amps`
	`200-PA Temperature : 100.0 F`
	`200-Supply Voltage : 24 Volts`
	`200-Receiver Gain : 0xDDBA`
	`200-ETSI TxRampOnTime : 4 ms`
	`200-ETSI TxRampOffTime : 5 ms`
	`200-ANSI TxRampOnTime : 2 ms`
	`200-ANSI TxRampOffTime : 1 ms`
	`200-i Offset : -167`
	`200-q Offset : 41`
	`200-i Magnitude : 30720`
	`200-q Magnitude : 30246`
	`200-phase Offset : 431`
	`200-Last radio reset : Hardware`
	`200-Power state : Full (0x1)`

5.1.3 Home - Basic Settings

Parameter	CLI Command	Options
Station Name	id.stationName Example: set id.stationname = MyViperRadio	<ASCII Text>
Power Management	low.power.mode Example: set low.power.mode = 0	0 = Disable 1 = Enabled (Follow Ignition Sense)
Auto Reset	station.autoreset.enable Example: set station.autoreset.enable = 0	0 = Automatic station reset disabled 1 = Automatic Station reset enabled
Unit Reset Interval	station.autoreset.timeout.minutes Example: set station.autoreset.timeout.minutes = 10	Minimum = 10 minutes
Temperature Setting	TSensor.temperature.fahrenheit Example: set TSensor.temperature.fahrenheit = 1	0 = Celsius 1 = Fahrenheit
VLAN Mode	vlan.enable Example: set vlan.enable = 1	0 = Disable 1 = Enabled
Management VLAN	vlan.management.enable Example: set vlan.management.enable = 1	0 = Disable 1 = Enabled
Management VLAN ID	vlan.management.pvid Example: set vlan.management.pvid= 103	
Save	save	

5.2 Radio Settings

5.2.1 Radio Settings – RF Settings

Parameter	CLI Command	Options
Transmitter Enabled / Disabled	Station.outofthebox Example: set station.outofthebox = 0	0 = Tx enabled 1 = Tx disabled
Channel Number	radio.activeChannel Example: set radio.activeChannel= 1	0 = Tx disabled 1 to 32 = Channel numbers (usually set to channel 1)
Tx Frequency	radio.channel.01.txFreq Example: set radio.channel.01.txFreq = 467.225000	Tx Frequency in MHz
Rx Frequency	radio.channel.01.rxFreq Example: set radio.channel.01.rxFreq = 462.225000	Rx Frequency in MHz
Tx Power	radio.channel.01.txPowerLevel Example: set radio.channel.01.txPowerLevel = 10.0	Tx power level in Watts
Bandwidth & Data Rate	radio.channel.01.channeltype Example: set radio.channel.01.channeltype = 3	0 = 6.25kHz Channel @ 4kbps 1 = 6.25kHz Channel @ 8kbps 2 = 12.5kHz Channel @ 8kbps 3 = 12.5kHz Channel @ 16kbps 4 = 25.0kHz Channel @ 16kbps 5 = 25.0kHz Channel @ 32kbps 6 = 6.25kHz Channel @ 12kbps 7 = Reserved for future use 8 = 12.5kHz Channel @ 24kbps 9 = 12.5kHz Channel @ 32kbps 10 = 25.0kHz Channel @ 48kbps 11 = 25.0kHz Channel @ 64kbps 50kHz Channels for VHF, 200MHz, and UHF models 12 = 50.0kHz Channel @ 32kbps 13 = 50.0kHz Channel @ 64kbps 14 = 50.0kHz Channel @ 96kbps 15 = 50.0kHz Channel @ 128kbps ETSI Compliant Channels 16 = 12.5kHz Channel @ 8kbps 17 = 12.5kHz Channel @ 16kbps 18 = 12.5kHz Channel @ 24kbps 19 = 25.0kHz Channel @ 16kbps 20 = 25.0kHz Channel @ 32kbps 21 = 25.0kHz Channel @ 48kbps 50kHz Channels for 900 MHz models 22 = 50kHz Channel @ 32kbps 23 = 50kHz Channel @ 64kbps 24 = 50kHz Channel @ 96kbps 25 = 50kHz Channel @ 128kbps 100kHz Channels for 200 MHz and 900 MHz models (Viper SC+

		only) 26 = 100kHz Channel @ 64kbps 27 = 100kHz Channel @ 128kbps 28 = 100kHz Channel @ 192kbps 29 = 100kHz Channel @ 256kbps
Carrier Sense Level Threshold	dsp.par.setup.csLevel Example set dsp.par.setup.csLevel = -110.000000	Carrier Sense Level in dBm
Listen Before Transmit	Mac.CsOverride Example: set Mac.CsOverride = 1	0 = Enabled (listen to noise and data) 1 = Enabled (listen to data only) 2 = Disabled
Save	save	

5.2.2 Radio Settings – CWID

Parameter	CLI Command	Options
CWID	cwid.enable Example: set cwid.enable = 1	0 = CWID enabled 1 = CWID disabled
CWID Call Sign	cwid.callsign= "" Example: set cwid.callsign= MyCallSign	<ASCII Text>
CWID Interval	cwid.interval Example: set cwid.interval= 30	<minutes> Range: 10 to 100 minutes
Save	save	

5.3 RF Network Settings

5.3.1 RF Network Settings – RF Network

Parameter	CLI Command	Options
IP Forwarding Mode	ip.forwarding.mode Example: set ip.forwarding.mode = 1	1 = Bridge 2 = Router
Access Point	oip.defaultGateway.enable Example: set oip.defaultGateway.enable = 1	0 = Access Point disabled 1 = Access Point enabled
Relay Point	station.relaypoint Example: set station.relaypoint = n	n = no y = yes
Multi-Speed Mode	physpeed.multispeed.enable Example: set physpeed.multispeed.enable= 1	0 = Disabled 1 = Enabled
RF IP Address	ip.rf.addr.override Example: set ip.rf.addr.override = 10.0.0.1	0.0.0.0 = Use pre-assigned Factory Default RF IP Address <IP Address> = Any other IP Address overrides the factory default value.
RF Netmask	ip.rf.netmask Example set ip.rf.netmask = 255.255.255.0	<Netmask>
RF MAC Address	ip.rf.mac.override Example: set ip.rf.mac.override = 0x800001	Can enter in following formats: Decimal: 1451841 Hex: 0x800001 Set to 0 to use factory default value.
Save	save	

5.3.2 RF Network Settings – RF Bandwidth Management

Parameter	CLI Command	Options
Data Retries	oip.nar.enable Example: set oip.nar.enable = 0 mac.retries Example set mac.retries= 2	0 = RF Retries are Enabled 1 = RF Retries are Disabled (Yes, 0 is enabled, 1 is disabled.) Number of retries when they are enabled: Range: 1 to 10
Collision Avoidance	Mac.RtsThreshold Example: set Mac.RtsThreshold= 128	Range: 0 to 1600
Random Backoff	Mac.ContentionMaxSize= 0 Example: set Mac.ContentionMaxSize= 0	Range: 0 to 10

TCP Proxy	oip.tcp.proxy.enable Example Set oip.tcp.proxy.enable= 0 Globally Turn TCP Proxy On/Off. This command can be executed on the Base station Viper and will turn proxy on to the entire network and will update all Neighbor Tables accordingly. gmf proxy <enable> all save Example: gmf proxy 1 all save	0 = Disabled 1 = Enabled <enable> 0 = Disable network wide 1 = Enable network wide
Duplicate Packet Removal	oip.duplicate.detection.enable Example: set oip.duplicate.detection.enable= 0	0 = Disabled 1 = Enabled
Bridge Forwarding	ip.forwarding.mode Example set ip.forwarding.mode = 2	1 = Bridge 2 = Router
TCP Tx Packet Pacing	oip.txPacing.tcp.ms Example: set oip.txPacing.tcp.ms = 100	Time between packets in ms.
UDP Tx Packet Pacing	oip.txPacing.udp.ms Example: set oip.txPacing.udp.ms = 150	Time between packets in ms.
Fragment Tx Packet Pacing	oip.txPacing.frag.ms Example: set oip.txPacing.frag.ms = 200	Time between packets in ms.
Other Packet Tx Pacing	oip.txPacing.other.ms Example: set oip.txPacing.other.ms = 250	Time between packets in ms.
Save	save	

5.3.3 RF Network Settings – Neighbor Table

Parameter	CLI Command	Options
Neighbor Discovery	neighborDiscovery.mode Example: set neighborDiscovery.mode = 2	0 = Neighbor Discovery Disabled 1 = Neighbor Discovery in Auto Scan Mode 2 = Neighbor Discovery in Manual Scan Mode
Show Neighbors	neighbor print	
Clear RSSIs	neighbor clear rssi	
Clear List	neighbor clear	
Force Scan	neighbor scan	
Test Connectivity	neighbor poll all	

Add Static Entry	neighbor add <nodeId> <rfIpAddress> <rfNetmask> <ethIpAddress> <ethNetmask> <hopCount> <nextHopNodeId> "<nodeName>" [<attributes>] [save] Where: <nodeid> = RF MAC address of unit to add in either ASCII or hex <rfIpAddress> = RF IP address of new unit <rfNetmask> = RF Netmask of new unit <ethIpAddress> = Ethernet IP Address of new unit <ethNetmask> = Ethernet Netmask of new unit <hopCount> = Number of RF hops required to reach new unit <nextHopNodeId> = RF MAC address of next hop "<nodeName>" = Text based description for unit <attributes> = ATTRIB-AP : Access Point enabled on unit. ATTRIB-RP : Relay Point enabled on unit. ATTRIB-NAT: NAT enabled on unit. ATTRIB-PXY: TCP proxy enabled on unit. Example (1-hop neighbor): > neighbor add 0x1234 10.1.1.1 255.0.0.0 172.30.1.1 255.255.255.0 1 0x1234 "pump #1" ATTRIB-AP ATTRIB-PXY Example (2-hop neighbor): > neighbor add 00:12:35 10.1.1.2 255.0.0.0 172.31.1.1 255.255.255.0 2 00:12:34 "pump #2"	
Delete Entry	neighbor delete <nodeid> Examples: neighbor delete 00:12:35 neighbor delete 0x1234	<nodeid> = RF MAC address of unit to delete in either ASCII or hex
Save	save	

5.3.4 RF Network Settings – VLAN

Parameter	CLI Command	Options
Port VLAN ID	vlan.rf.pvid Example: set vlan.rf.pvid = 1	Range: 1 to 4094
Member of Management VLAN	vlan.rf.memberofmgmtvlan Example: set vlan.rf.memberofmgmtvlan= 1	0 = Disabled 1 = Enabled
Ingress Untagged	vlan.rf.tagged.ingress.novid.action Example: set vlan.rf.tagged.ingress.novid.action= 2	1 = Silently Drop Packet 2 = Keep Packet Unchanged 3 = Retag Packet with PVID 4 = Tag Packet with PVID 5 = Delete Tag
Ingress VID = 0	vlan.rf.tagged.ingress.nullvid.action Example: set vlan.rf.tagged.ingress.nullvid.action= 1	
Ingress VID = PVID	vlan.rf.tagged.ingress.videqpvid.action Example: Set vlan.rf.tagged.ingress.videqpvid.action= 2	
Ingress VID!= PVID (VID is in table)	vlan.rf.tagged.ingress.vidneqpvid1.action Example: set vlan.rf.tagged.ingress.vidneqpvid1.action= 2	

Ingress VID!= PVID (VID is not in table)	vlan.rf.tagged.ingress.vidneqpvid2.action= 2 Example: set vlan.rf.tagged.ingress.vidneqpvid2.action= 2	
Egress Untagged	vlan.rf.tagged.egress.novid.action Example: set vlan.rf.tagged.egress.novid.action= 2	1 = Silently Drop Packet 2 = Keep Packet Unchanged 3 = Retag Packet with PVID 4 = Tag Packet with PVID 5 = Delete Tag
Egress VID = 0	vlan.rf.tagged.egress.nullvid.action Example: set vlan.rf.tagged.egress.nullvid.action= 1	
Egress VID = PVID	vlan.rf.tagged.egress.videqpvid.action Example: Set vlan.rf.tagged.egress.videqpvid.action= 2	
Egress VID!= PVID (VID is in table)	vlan.rf.tagged.egress.vidneqpvid1.action Example: set vlan.rf.tagged.egress.vidneqpvid1.action= 2	
Egress VID!= PVID (VID is not in table)	vlan.rf.tagged.egress.vidneqpvid2.action= 2 Example: set vlan.rf.tagged.egress.vidneqpvid2.action= 2	
Save	save	

5.3.5 RF Network Settings – QoS

Parameter	CLI Command	Options
QoS Enabled	qos.enable Example: set qos.enable= 1	0 = Disabled 1 = Enabled
Default LAN Queue	qos.defaultqueue Example: set qos.defaultqueue= 1	1 = Queue 1 2 = Queue 2 … 5 = Queue 5
High Priority	qos.highprioqueue= 2 Example: set qos.highprioqueue= 2	1 = Queue 1 2 = Queue 2 … 5 = Queue 5 6 = Com Port 7 = Setup Port
LAN Queue X		
Enable	qos.userx.enable Example: set qos.user1.enable= 0 set qos.user2.enable= 1	x = queue number (1-7) 0 = Disabled 1 = Enabled
Rate (%)	qos.userx.rate.percentage Example: set qos.user1.rate.percentage= 50 set qos.user6.rate.percentage= 10	x = queue number (1-7) Percent
Ceiling (%)	qos.userx.ceiling.percentage Example: set qos.user1.ceiling.percentage= 100 set qos.user7.ceiling.percentage= 50	x = queue number (1-7) Percent
Queue Size	qos.userx.pkts.count Example: set qos.user1.pkts.count= 5 set qos.user3.pkts.count= 20	x = queue number (1-7) Number of Packets

QoS Filter

```
filters

usage:
  filters -A [options...] -qos <txqueueid> [-save]  "Add a filter"
  filters -D -pos <position> [-save]              "Delete a filter"
  filters -E -pos <position> [options...] [-save] "Edit a filter"
  filters -M -pos <position> -up [-save]          "Move a filter up"
  filters -M -pos <position> -down [-save]        "Move a filter down"
  filters -L                                      "List all filters"
  filters -F [-save]                              "Flush all filters"

where :
   -pos <position>        -> The filter position in the list
                             (range: 1-128)
   -save                  -> Execute the "save" command after
                             completion of the "filters" command
   -up                    -> Move a filter up one spot in the list
                            (filter at position n is placed at n-1).
   -down                  -> Move a filter down one spot in the list
                            (filter at position n is placed at n+1).
   -qos <txqueueid>       -> The RF transmit queue identifier
                            (range: 1-5)

where options...:
   -v <vlanid>[:<vlanid>]  -> A VLAN identifier. This is used in bridge
                              mode only (min:1, max:4094).
                              A range of value can be specified
   -tos <tos>[:<tos>]      -> The IP header TOS field (type of service)
                             (min:0, max:255)
                             A range of value can be specified
   -dscp <codepoint>[:<codepoint>] -> The upper 6 bits of the 8 bits
                                      TOS field (min:0, max:63)
                                      A range of value can be specified
   -s <ip> <mask>          -> Source ip address and mask
                              (format: a.b.c.d w.x.y.z)
                              Example: 200.200.200.0 255.255.255.0
    or
   -s <ip>/<masklen>          (format: a.b.c.d/x)
                              Example: 200.200.200.0/24
   -d <ip> <mask>          -> Destination ip address and mask
                              (format: a.b.c.d w.x.y.z)
                               Example: 200.200.200.0 255.255.255.0
    or
   -d <ip>/<masklen>          (format: a.b.c.d/x)
                               Example: 200.200.200.0/24
   -p <proto>[:<proto>]    -> The ip protocol number (min:1, max:255)
                              A range of value can be specified
   -sp <port>[:<port>]     -> A UDP or TCP source port number
                              (min:1, max:65535)
                              A range of value can be specified
   -dp <port>[:<port>]     -> A UDP or TCP destination port number
                              (min:1, max:65535)
                              A range of value can be specified
   -tcpflag <flag> <value> -> A specific TCP flag
                              <flag>  : syn OR fin OR ack OR rst OR
                              psh OR urg
                              <value> : 0 OR 1
                              You can repeat this option many times
   -iplen <len>[:<len>]    -> The length found in the IP header.
                              min:1, max:65535)
                              A range of value can be specified
```

```
note:
The "options" section define the values to be match against the incoming
packets.  A missing option means "any" value for for the field will be
accepted. Ranges of values can be specified by using a ":" in between the
minimum and maximum values (example -> 100:155).


Example 1: Show Filters
 filters -L
 200- ------------------------------------------------------------------------
----
 200- FILTER TABLE
 200- ------------------------------------------------------------------------
----
 200- 1) -d 239.192.0.1 255.255.255.255 -qos 3 hits 1
 200- 2) -p 17 -dp 9999 -qos 2 hits 0
 200- ------------------------------------------------------------------------
----
 200  Total: 2 filters

Example 2:  Move a filter up in the list
 filters -M -pos 2 -up -save

Example 3: Filter all UDP traffic destined to port 20000 with a source
address of 192.168.206.0 into queue 2.
 filters -A -s 192.168.206.0/24 -p 17 -dp 20000 -qos 2 -save
```

Save	save	

5.3.6 RF Network Settings – QoS Statistics

Parameter	CLI Command
Show Stats	\qos.stat.show qos.stat.show Example: >\qos.stat.show

```
200-------------------------------------------------------------------------------------------------
----
200-                                    QoS statistics
200-------------------------------------------------------------------------------------------------
----
200-          (tx queue full)                                  (success)             (failure)
200-             Dropped                Queued                   Sent                  Sent
200-ID Name Packets    Bytes      Packets    Bytes      Packets    Bytes      Packets    Bytes
200--- ---- ---------- ---------- ---------- ---------- ---------- ---------- ---------- ------
----
200-0  ctrl 0          0          0          0          3          144        0          0
200-1  usr1 0          0          0          0          0          0          0          0
200-2  usr2 0          0          0          0          0          0          0          0
200-3  usr3 0          0          0          0          0          0          0          0
200-4  usr4 0          0          0          0          0          0          0          0
200-5  usr5 0          0          0          0          0          0          0          0
200-6  setp 0          0          0          0          0          0          0          0
200-7  data 0          0          0          0          0          0          0          0
200-------------------------------------------------------------------------------------------------
----
200-
200-TX total (packets)     : 3
200-   tx success          : 3
200-   tx failure          : 0
200-   tx timeout          : 0
200-   tx retries          : 0
200-   tx confirmation     : 3
200-   max tx confirmation : 0 sec 46 ms
200-RX total (packets)     : 0
200-
200 -------------------------------------------------------------------------------------------------
----
```

Clear Stats	qos.stat.zero	

5.4 LAN Settings

5.4.1 LAN Settings – LAN Settings

Parameter	CLI Command	Options
LAN Port	ip.eth.1.enable Example: set ip.eth.1.enable= 1	0 = Disabled 1 = Enabled
LAN IP Address	ip.eth.1.addr Example: set ip.eth.1.addr= 192.168.50.146	IP Address
LAN Netmask	ip.eth.1.netmask Example: set ip.eth.1.netmask= 255.255.255.0	Netmask
LAN Gateway	route add default <gateway_ip_address> Example: route add default gateway 192.168.50.254 route print Example: route print 200-+----------+ 200-Type: S-Static, R-RIPv2, P-Proprietary, C-Connected, M-Maintenance 200-+----------+ 200- Destination Gateway 200- IP Address Netmask IP Address RF MAC Type 200-+----------+ 200- 0.0.0.0 0.0.0.0 192.168.50.254 S 200- 1.1.1.0 255.255.255.0 1.1.1.1 M 200- 1.1.1.1 255.255.255.255 1.1.1.1 M 200- 10.88.50.24 255.255.255.248 10.128.0.2 80:00:02 P 200- 10.128.0.0 255.255.255.0 10.128.0.1 C 200- 10.128.0.1 255.255.255.255 10.128.0.1 C 200- 192.168.50.0 255.255.255.0 192.168.50.146 C 200- 192.168.50.146 255.255.255.255 192.168.50.146 C 200 +----------+	
LAN MTU	ip.eth.1.mtu Example: set ip.eth.1.mtu= 1500	MTU size
Maintenance IP Address	id.router.addr Example: set id.router.addr= 1.1.1.1	IP Address
Maintenance Netmask	id.router.netmask Example: set id.router.netmask= 255.255.255.0	Netmask
Save	save	

5.4.2 LAN Settings – DHCP

Parameter	CLI Command	Options
DHCP Server	ip.eth.1.dhcp.srv.enable Example: set ip.eth.1.dhcp.srv.enable= 0	0 = Disabled 1 = Enabled
Start Address	ip.eth.1.dhcp.srv.addr.start Example: set ip.eth.1.dhcp.srv.addr.start= 192.168.50.1	IP Address

Number of Leases	ip.eth.1.dhcp.srv.lease.max Example: set ip.eth.1.dhcp.srv.lease.max= 5	Number of Leases
Lease Duration	ip.eth.1.dhcp.srv.lease.duration Example: set ip.eth.1.dhcp.srv.lease.duration= 0	<minutes> 0 = Infinite
Gateway	ip.eth.1.dhcp.srv.gateway.override Example: set ip.eth.1.dhcp.srv.gateway.override = 192.168.50.254	IP Address
Save	save	

5.4.3 LAN Settings – SNTP

Parameter	CLI Command	Options
Client	time.sntpc.enable Example: set time.sntpc.enable= 1	0 = Disabled 1 = Enabled
Server Address	time.sntpc.srv.addr Example set time.sntpc.srv.addr= 12.23.34.45	IP Address
Period	time.sntpc.period= 64 Example: set time.sntpc.period= 64	Seconds
Time Zone	time.timezone.zone (Read/Write) time.timezone (Read Only) Example: set time.timezone.zone= 5 get time.timezone 200-time.timezone= "(GMT -6:00) Central" 200 1 parameters found	<zone> = 0 to 33
Daylight Saving	time.timezone.daylight.enable Example: set time.timezone.daylight.enable= 1	0 = Disabled 1 = Enabled
Save	save	
Local Time	status Example: status 200-Time since reset [DD:HH:MM:SS]: 0:00:07:01 (421) 200-Date and time: **2007-10-01 01:06:42** 200-PCB Temperature: 29.5 C 200-PCB Temperature Alarm On Thresold: 85.0 C 200-PCB Temperature Alarm Off Thresold: 45.0 C 200-Heap Space Remaining: 2822 KBytes 200-DC Input Voltage: 13.9 V 200 Debug jumper: Not installed	

5.4.4 LAN Settings – VLAN

Parameter	CLI Command	Options
Mode	set vlan.eth.mode Example: set vlan.eth.mode = 2	1 = Tagged 2 = Untagged
Port VLAN ID	vlan.eth.pvid Example: set vlan.eth.pvid = 112	Range: 1 to 4094

Member of Management VLAN	vlan.eth.memberofmgmtvlan Example: set vlan.eth.memberofmgmtvlan= 1	0 = Disabled 1 = Enabled
VLAN Advanced Settings when Mode = Tagged		
Ingress Untagged	vlan.eth.tagged.ingress.novid.action Example: set vlan.eth.tagged.ingress.novid.action= 2	1 = Silently Drop Packet 2 = Keep Packet Unchanged 3 = Retag Packet with PVID 4 = Tag Packet with PVID 5 = Delete Tag
Ingress VID = 0	vlan.eth.tagged.ingress.nullvid.action Example: set vlan.eth.tagged.ingress.nullvid.action= 1	
Ingress VID = PVID	vlan.eth.tagged.ingress.videqpvid.action Example: Set vlan.eth.tagged.ingress.videqpvid.action= 2	
Ingress VID!= PVID (VID is in table)	vlan.eth.tagged.ingress.vidneqpvid1.action Example: set vlan.eth.tagged.ingress.vidneqpvid1.action= 2	
Ingress VID!= PVID (VID is not in table)	vlan.eth.tagged.ingress.vidneqpvid2.action= 2 Example: set vlan.eth.tagged.ingress.vidneqpvid2.action= 2	
Egress Untagged	vlan.eth.tagged.egress.novid.action Example: set vlan.eth.tagged.egress.novid.action= 2	1 = Silently Drop Packet 2 = Keep Packet Unchanged 3 = Retag Packet with PVID 4 = Tag Packet with PVID 5 = Delete Tag
Egress VID = 0	vlan.eth.tagged.egress.nullvid.action Example: set vlan.eth.tagged.egress.nullvid.action= 1	
Egress VID = PVID	vlan.eth.tagged.egress.videqpvid.action Example: Set vlan.eth.tagged.egress.videqpvid.action= 2	
Egress VID!= PVID (VID is in table)	vlan.eth.tagged.egress.vidneqpvid1.action Example: set vlan.eth.tagged.egress.vidneqpvid1.action= 2	
Egress VID!= PVID (VID is not in table)	vlan.eth.tagged.egress.vidneqpvid2.action= 2 Example: set vlan.eth.tagged.egress.vidneqpvid2.action= 2	
VLAN Advanced Settings when Mode = Untagged		
Ingress Untagged	vlan.eth.untagged.ingress.novid.action Example: set vlan.eth.untagged.ingress.novid.action= 4	1 = Silently Drop Packet 2 = Keep Packet Unchanged 3 = Retag Packet with PVID 4 = Tag Packet with PVID 5 = Delete Tag
Ingress VID = 0	vlan.eth.untagged.ingress.nullvid.action Example: set vlan.eth.untagged.ingress.nullvid.action= 1	
Ingress VID = PVID	vlan.eth.untagged.ingress.videqpvid.action Example: set vlan.eth.untagged.ingress.videqpvid.action= 2	
Ingress VID!= PVID	vlan.eth.untagged.ingress.vidneqpvid.action Example: set vlan.eth.untagged.ingress.vidneqpvid.action= 1	

Egress Untagged	vlan.eth.untagged.egress.novid.action Example: set vlan.eth.untagged.egress.novid.action= 2	1 = Silently Drop Packet 2 = Keep Packet Unchanged 3 = Retag Packet with PVID 4 = Tag Packet with PVID 5 = Delete Tag
Egress VID = 0	vlan.eth.untagged.egress.nullvid.action Example: set vlan.eth.untagged.egress.nullvid.action= 1	
Egress VID = PVID	vlan.eth.untagged.egress.videqpvid.action Example: set vlan.eth.untagged.egress.videqpvid.action= 5	
Egress VID!= PVID	vlan.eth.untagged.egress.vidneqpvid.action Example: set vlan.eth.untagged.egress.vidneqpvid.action= 1	
Save	save	

5.4.5 LAN Settings – Ethernet (PHY)

Parameter	CLI Command	Options
Commands can be used in 200 MHz and 900 MHz Viper SC+ Models only		
PHY Mode	ip.eth.1.phy.speed Example: set ip.eth.1.phy.speed = 2	0 = Auto Negotiate 1 = Force to 100 Mbps 2 = Force to 10 Mbps
PHY Bitrate	ip.eth.1.phy.mode Example: set ip.eth.1.phy.mode = 2	0 = Auto Negotiate 1 = Full Duplex 2 = Half Duplex
Save	save	

5.5 Router

5.5.1 Router – Routing Table

Parameter	CLI Command	Options
RIPv2	ip.ripv2.enable Example: set ip.ripv2.enable= 1	0 = Disabled 1 = Enabled
Display Routing Table	route print Example: >route print 200-+----------+ 200-Type: S-Static, R-RIPv2, P-Proprietary, C-Connected, M-Maintenance 200-+----------+ 200- Destination Gateway 200- IP Address Netmask IP Address RF MAC Type 200-+----------+ 200- 1.1.1.0 255.255.255.0 1.1.1.1 M 200- 1.1.1.1 255.255.255.255 1.1.1.1 M 200- 10.0.0.0 255.0.0.0 10.128.24.78 C 200- 10.128.24.78 255.255.255.255 10.128.24.78 C 200- 192.168.205.0 255.255.255.0 192.168.205.1 C 200- 192.168.205.1 255.255.255.255 192.168.205.1 C 200 +----------+	
Delete All Routes	route flush Example: route flush 250 OK	
Add Static Route	route add <ip_net_addr> <ip_net_mask> <gateway_ip_addr> Example: route add 120.1.1.0 255.255.255.0 192.168.205.120	
Add Static Route (gateway is on the RF interface)	route add <ip_net_addr> <ip_net_mask> <gateway_rf_ip_addr> <gateway_rf_mac_address> Example: route add 200.200.200.0 255.255.255.0 10.128.2.3 0x1234 route add 200.200.200.0 255.255.255.0 10.128.2.3 00:12:34	
Add Default Route	route add default <gateway_ip_addr> Example: route add default 192.168.205.254	
Delete a Static Route	route delete <ip_net_addr> <ip_net_mask> Example: route delete 200.200.200.0 255.255.255.0	
Delete a Default Route	route delete default <gateway_ip_addr> Example: Route delete default 192.168.205.254	
Save	save	

5.5.2 Router – NAT

Parameter	CLI Command	Options
NAT	ip.nat.enable Example: set ip.nat.enable= 1	0 = Disabled 1 = Enabled
Eth NAT Enable	ip.nat.privNet.1.enable= 1 Example: set ip.nat.privNet.1.enable= 1	0 = Disabled 1 = Enabled
RF NAT Enable	ip.nat.privNet.2.enable Example: set ip.nat.privNet.2.enable= 1	0 = Disabled 1 = Enabled
User 1	ip.nat.privNet.3.enable ip.nat.privNet.3.ipaddr ip.nat.privNet.3.netmask Example: set ip.nat.privNet.3.enable= 1 set ip.nat.privNet.3.ipaddr= 172.168.0.0 set ip.nat.privNet.3.netmask= 255.255.0.0	0 = Disabled 1 = Enabled
User 2	ip.nat.privNet.4.enable ip.nat.privNet.4.ipaddr ip.nat.privNet.4.netmask Example: set ip.nat.privNet.4.enable= 1 set ip.nat.privNet.4.ipaddr= 192.168.0.0 set ip.nat.privNet.4.netmask= 255.255.0.0	0 = Disabled 1 = Enabled
User 3	ip.nat.privNet.5.enable ip.nat.privNet.5.ipaddr ip.nat.privNet.5.netmask Example: set ip.nat.privNet.5.enable= 1 set ip.nat.privNet.5.ipaddr= 200.200.0.0 set ip.nat.privNet.5.netmask= 255.255.0.0	0 = Disabled 1 = Enabled
NAT Port Forwarding Table	ip.nat.portFwd.x.protocol= 0 ip.nat.portFwd.x.publicPortFirst= 0 ip.nat.portFwd.x.publicPortLast= 0 ip.nat.portFwd.x.privateIpaddr= 0.0.0.0 ip.nat.portFwd.x.privatePort= 0 ip.nat.portFwd.x.enable= 0 Where x = 1, 2, 3, 4, or 5 corresponding to lines 1 through 5. Example: set ip.nat.portFwd.1.protocol= 17 set ip.nat.portFwd.1.publicPortFirst= 20000 set ip.nat.portFwd.1.publicPortLast= 20000 set ip.nat.portFwd.1.privateIpaddr= 192.168.205.2 set ip.nat.portFwd.1.privatePort= 20000 set ip.nat.portFwd.1.enable= 1	0 = Disabled 6 = TCP 17 = UDP <port_number> <port_number> <ip_address> <port_number> 0 = Disabled 1 = Enabled
Save	save	

5.5.3 Router – VTS

Parameter	CLI Command	Options
	There are 5 VTS modules available on the Viper. For each CLI command insert the appropriate module number in place of 'x' in the CLI command.	
VTS Enable	vts.x.enable Example: set vts.1.enable = 1	0 = Disabled 1 = Enabled
Mode	vts.x.left.mode vts.x.right.mode Example: set vts.2.left.mode= 1 set vts.2.right.mode= 3	1 = TCP Server 2 = TCP Client 3 = UDP
Local IP Address	vts.x.left.local.interface vts.x.right.local.interface Example: set vts.1.left.local.interface= auto set vts.1.right.local.interface= eth	auto = Automatic eth = Ethernet rf = RF
Local Port	vts.x.left.local.port vts.x.right.local.port Example: set vts.3.left.local.port= 6281 set vts.3.right.local.port= 6291	<port_number>
Remote IP Address	vts.x.left.remote.address vts.x.right.remote.address Example: set vts.4.left.remote.address= 192.168.205.120 set vts.4.right.remote.address= 10.128.0.5	<ip_address>
Remote Port	vts.x.left.remote.port vts.x.right.remote.port Example: set vts.5.left.remote.port= 6285 set vts.5.right.remote.port= 6278	<port_number>
TCP Keepalive	vts.x.left.tcp.keepalive.timeout.minutes vts.x.right.tcp.keepalive.timeout.minutes Example: set vts.1.left.tcp.keepalive.timeout.minutes= 1 set vts.1.right.tcp.keepalive.timeout.minutes= 5	Minutes
UDP Auto Response	vts.x.left.udp.autoresponse.enable vts.x.right.udp.autoresponse.enable Example: set vts.2.left.udp.autoresponse.enable= 0 set vts.2.right.udp.autoresponse.enable= 1	0 = Disabled 1 = Enabled
UDP Local Copy	vts.x.left.udp.localcopy.enable vts.x.right.udp.localcopy.enable Example: set vts.3.left.udp.localcopy.enable= 0 set vts.3.right.udp.localcopy.enable= 1	0 = Disabled 1 = Enabled

Status	get vts.x.left.status get vts.x.right.status Example: get vts.1.left.status 200-vts.1.left.status= "down" 200 1 parameters found	
Save	save	

5.6 Serial

5.6.1 Serial – Com/Setup Port

Parameter	CLI Command	Options
Serial Ports Setup	ts.com.**1**.xxx Serial Port 1 is the **Setup Port** ts.com.**2**.xxx Serial Port 2 is the **Com Port**	
Enabled	See IP Gateway Transport parameter below. Example: set ts.com.2.mode = 0	
Speed	ts.com.x.baudrate Example: set ts.com.2.baudrate = 115200	300, 1200, 4800, 9600, or 19200 for Setup Port 300, 1200, 4800, 9600, 19200, 38400, 57600, or 115200 for Com Port
Data Bits	ts.com.x.dataBits Example: set ts.com.2.dataBits = 8	7 or 8
Stop Bits	ts.com.x.stopBits Example: set ts.com.2.stopBits = 1	1 or 2
Parity	ts.com.x.parity Example: set ts.com.2.parity = 0	0 = No Parity 1 = Odd Parity 2 = Even Parity
DCD Control	ts.com.x.dcdCtrl Example: set ts.com.1.dcdCtrl = 2	0 = DCD is Never Asserted (DCD: Data Carrier Detect) 1 = DCD is Always Asserted 2 = DCD in Envelope Mode
Packet Forwarding Threshold	ts.com.x.idleChar Example: set ts.com.1.idleChar = 4	Packet Forwarding Threshold (2-8)
Flow Control	ts.com.x.flowCtrl Example: set ts.com.2.flowCtrl = 0	0 = No Flow Control 1 = CTS Based Flow Control
Connection Control	ts.com.x.connectionCtrl Example: set ts.com.1.connectionCtrl = 1	0 = Permanent (3-wire) Connection Control 1 = Switched (DTR bringup/ teardown) Connection Control
IP Gateway Service	ts.com.x.service Example: set ts.com.2.service = 3	0 = CLI (BSC/GCU) 1 = Serial/RF bridge 2 = Online diagnostics 3 = Custom (BSC/GCU) 4 = Reserved 5 = Serial/RF bridge RTS/CTS Mode

IP Gateway Transport	ts.com.x.mode Example: set ts.com.2.mode = 3	IP Gateway Service (ts.com.x.service) must be equal to 3 (custom) before changing this parameter: 0 = Disabled 1 = TCP Server 2 = TCP Client 3 = UDP 4 = TCP Client/Server Mode
Local IP Address	ts.com.x.local.interface Example: set ts.com.2.local.interface = rf	auto = Automatic eth1 = Ethernet rf = RF Interface
Local Port Number	ts.com.x.local.port Example: set ts.com.2.local.port = 6278	Port Number
Remote IP Address	ts.com.x.remote.address Example: set ts.com.2.remote.address = 10.1.1.1	IP Address
Remote Port Number	ts.com.x.remote.port Example: set ts.com.2.remote.port = 6278	Port Number
TCP Keepalive	ts.com.x.tcpKeepaliveTimeoutMin Example: set ts.com.2.tcpKeepaliveTimeoutMin = 10	0 = Keepalive is disabled 1 –1440 = # of minutes between Keepalive messages
Save	save	

COM Port RTS/CTS Mode Settings		
Parameter	CLI Command	Options
CTS assertion delay COM Port	scada.1.rts_asserted_to_cts Example: set scada.1.rts_asserted_to_cts= 4	Milliseconds
CTS negation delay COM Port	scada.1.rts_deasserted_to_cts Example: set scada.1.rts_deasserted_to_cts= 4	Milliseconds
Send all buffered data before negating CTS COM Port	scada.1.cts_deassertion_mode Example: set scada.1.cts_deassertion_mode= 1	0 = Unchecked/Disabled 1 = Checked/Enabled
Fragment Large Messages COM Port	scada.1.rx_available_mode Example: set scada.1.rx_available_mode= 1	0 = Unchecked/Disabled 1 = Checked/Enabled
Discard all buffered data when entering flow control COM Port	scada.1.external_event_data_mode Example: set scada.1.external_event_data_mode= 1	0 = Unchecked/Disabled 1 = Checked/Enabled
Save	save	

5.6.2 Serial – VLAN

Parameter	CLI Command	Options
Serial Ports Setup	vlan.**setup**.xxx is the **Setup Port** vlan.**data**.xxx is the **Com Port**	
Port VLAN ID	vlan.xxxx.pvid Example: set vlan.setup.pvid = 112 set vlan.data.pvid = 110	Range: 1 to 4094
VLAN Advanced Settings when Mode = Untagged		
Egress Untagged	vlan.xxxx.untagged.egress.novid.action Example: set vlan.setup.untagged.egress.novid.action= 2 set vlan.data.untagged.egress.novid.action= 2	1 = Silently Drop Packet 2 = Keep Packet Unchanged 5 = Delete Tag
Egress VID = 0	vlan.xxxx.untagged.egress.nullvid.action Example: set vlan.setup.untagged.egress.nullvid.action= 1 set vlan.data.untagged.egress.nullvid.action= 1	
Save	save	

5.6.3 Serial – Advanced

Parameter	CLI Command	Options
Serial/RF Bridge Broadcast	Command TBD	
Save	save	

5.7 Security

5.7.1 Security – Password

Parameter	CLI Command	Options
User Name	authentication.anyuser Example: set authentication.anyuser= 1 authentication.username Example: set authentication.username= "MyUserName"	0 = Must user correct username 1 = Username doesn't matter
Password	_password <old_password> <new_password> Command must be sent twice. Example: >_password ADMINISTRATOR MyNewPass123 407 Retype the command a second time to confirm the new password. >_password ADMINISTRATOR MyNewPass123 200 Password updated. Note: When executing these commands via telnet, the old and new passwords will not be echoed back to the user's terminal.	The minimum password length is 8 characters The maximum password length is 15 characters

5.7.2 Security – AES Encryption

Parameter	CLI Command	Options
Encryption Enabled	oip.encryption.enable= 1 Example: set oip.encryption.enable= 1	0 = Disabled 1 = Enabled
Encryption Pass Phrase	oip.encryption.phrase Example: set oip.encryption.phrase= "123MyEncryptCode123"	"<pass phrase>"
Save	save	

5.7.3 Security – RADIUS

Parameter	CLI Command	Options
Command Shell	authentication.cmdshell.mode Example: set authentication.cmdshell.mode = 0	0 = Local 1 = RADIUS & Local 2 = RADIUS
HTTP Server	authentication.http.mode Example: set authentication.http.mode= 0	
FTP Server	authentication.ftp.mode Example: set authentication.ftp.mode= 0	
Device Authentication	authentication.device.enable= 0 Example: authentication.device.enable= 0	0 = Disabled 1 = Enabled
RADIUS Server IP	radius.client.dest.ip.addr Example: set radius.client.dest.ip.addr = 192.168.205.200	

RADIUS Server Port	radius.client.dest.ip.port Example: set radius.client.dest.ip.port = 1812	
RADIUS Secret	radius.client.secret Example: set radius.client.secret= "dataradio"	"<secret>"
RADIUS Timeout	radius.client.send.timeout.sec Example: set radius.client.send.timeout.sec= 3	Seconds
RADIUS Retries	radius.client.send.retries Example: set radius.client.send.retries= 3	
Delay Between Retries	radius.client.send.deadtime.sec Example: set radius.client.send.deadtime.sec= 1	Seconds
Save	save	

5.7.4 Security – VPN

Parameter	CLI Command	Options
VPN Login	vpn.login <password> Example: >vpn.login Password- <password> Super-user logged in $	<password> = Blank by default, but must be set to enable VPN.
VPN Enable	vpn.enable	
VPN Disable	vpn.disable	
Clear VPN Password and Master Key	vpn.reset	

VPN Stats	>vpn.ss.show 211-SS network: up 211- 211- performance: 211- network latency min,avg,max: 0.000, 0.000, 0.000 sec 211- key exchange time min,avg,max: 0.000, 0.000, 0.000 sec 211- timer-slip min,avg,max: 0, 0, 0 sec 211- 211- secure sessions: 2 active, 1 keyed, 1 of 1 keyx 211- history: 1 added, 0 idle-timeout, 0 deleted 211- key exchanges: 0 ok, 0 timeout, 2 error 211- retry min,avg,max: 1, 1, 2 211- 211- packet activity: 211- fwd 0 tx 0 rx 0 211- prb 0 prb 0 211- 0 0 211- flt 0 dsc 0 err 0 211- 211- active encaps buffers curr,high,limit: 0, 1, 16 211 Done	
Show VPN Faults	get vpn.status.fault Example: >get vpn.status.fault 200-vpn.status.fault= "vpn in key exchange" 200 1 parameters found	
Save	save	
The Following commands can only be executed after the user has logged in using the VPN Password. See VPN Login above.		
VPN Logout	vpn.logout	
Set VPN Password	vpn.login.set <password> Example $vpn.login.set Admin12345	
Set VPN Key Strength	vpn.strength.set <strength> Example: $vpn.strength.set 256 200-strength updated (master key cleared) - try 'vpn.msk.set' 200 Done	Where <strength> = 128, 192, or 256
Set VPN Master Key	vpn.msk.set <key> Example: $vpn.msk.set 1234567890123456 200-master key updated - save to make permanent 200 Done	
Set VPN Server Defaults	vpn.defaults.set server Example: $vpn.defaults.set server 200-server defaults set (login, key-strength, and MSK not affected) 200- - save to make permanent then reset device 200 Done	

Set VPN Client Defaults	vpn.defaults.set client Example: $vpn.defaults.set client 200-client defaults set (login, key-strength, and MSK not affected) 200- - use 'set vpn.ip.srv.#.addr' to set server IP address(es) 200- - save to make permanent then reset device 200 Done	
Operating Mode	vpn.gen.srv.mode Example set vpn.gen.srv.mode = 1	0 = Client 1 = Server
Automatic Start	vpn.gen.autostart Example: set vpn.gen.autostart = 1	0 = Disabled 1 = Enabled
Source Filter IP Address IP Netmask Port Range	vpn.ip.flt.src.addr vpn.ip.flt.src.netmask vpn.ip.flt.src.port.1 vpn.ip.flt.src.port.2 Example: set vpn.ip.flt.src.addr = 192.168.205.0 set vpn.ip.flt.src.netmask = 255.255.255.0 set vpn.ip.flt.src.port.1 = 1024 set vpn.ip.flt.src.port.2 = 5000	
Destination Filter IP Address IP Netmask Port Range	vpn.ip.flt.dst.addr vpn.ip.flt.dst.netmask vpn.ip.flt.dst.port.1 vpn.ip.flt.dst.port.2 Example: set vpn.ip.flt.dst.addr = 0.0.0.0 set vpn.ip.flt.dst.netmask = 255.255.255.255 set vpn.ip.flt.dst.port.1 = 1024 set vpn.ip.flt.dst.port.2 = 5000	
Client Settings		
Server 1 Server 2 Server 3 Server 4	vpn.ip.srv.1.addr vpn.ip.srv.2.addr vpn.ip.srv.3.addr vpn.ip.srv.4.addr Example: Set vpn.ip.srv.1.addr = 10.128.0.1	<ip_address>
Server Setting		
Block non-VPN Traffic	vpn.opt.ss.required Example: set vpn.opt.ss.required = 1	0 = Disabled 1 = Enabled
Status Frequency	vpn.opt.srv.adv.freq Example: set vpn.opt.srv.adv.freq= 10	seconds
Idle Timeout	vpn.opt.idle.minutes Example: set vpn.opt.idle.minutes = 15	Minutes

Idle Probes	vpn.opt.idle.probes Example: set vpn.opt.idle.probes= 3	
Key Timeout	vpn.opt.key.hours Example: set vpn.opt.key.hours= 6	Hours
Network Latency	vpn.opt.net.latency Example: set vpn.opt.net.latency = 20	seconds
Save	save	

5.8 Diagnostics

5.8.1 Diagnostics – Interface Statistics

Parameter	CLI Command

Ethernet Stats	View Stats
	`stat eth *`
	
	Reset Stats
	`Zero eth *`
	
	`Example:`
	`stat eth*`
	`200-Statistics:-`
	`200-eth.1.rx.pkt= 93494 (0x16d36)`
	`200-eth.1.tx.pkt= 89453 (0x15d6d)`
	`200 2 statistics found`

Serial Stats	View Stats
	`stat ts*`
	
	Reset Stats
	`zero ts*`
	
	`Example:`
	`stat ts*`
	`200-Statistics:-`
	`200-ts.com.1.rx.bytes= 0 (0x0)`
	`200-ts.com.1.rx.pkt= 0 (0x0)`
	`200-ts.com.1.tx.bytes= 0 (0x0)`
	`200-ts.com.1.tx.pkt= 0 (0x0)`
	`200-ts.com.2.rx.bytes= 0 (0x0)`
	`200-ts.com.2.rx.pkt= 0 (0x0)`
	`200-ts.com.2.tx.bytes= 200 (0xc8)`
	`200-ts.com.2.tx.pkt= 2 (0x2)`
	`200 8 statistics found`

OIP Sublayer Packets	View Stats
	`stat oip.rx.pkt`
	`stat oip.tx.pkt`
	
	Reset Stats
	`zero oip.rx.pkt`
	`zero oip.tx.pkt`
	
	`Example:`
	`stat oip.rx.pkt`
	`200-oip.rx.pkt= 12 (0xc)`
	`200 1 statistics found`

Airlink Sublayer Packets	View Stats
	`mac.stat.show`
	
	Reset Stats
	`mac.stat.zero`
	
	`Example:`
	`mac.stat.show`
	`200-MAC statistics ----------`
	`200-Rx DATA messages:. . . . 15 15`

	200-Rx CTRL messages:. . . . 36 36 200-Rx TOTAL messages: . . . 51 51 200-Rx INVALID messages: . . 0 0 200-Tx DATA messages:. . . . 15 15 200-Tx CTRL messages:. . . . 36 36 200-Tx TOTAL messages: . . . 51 51 200-Msg success count: . . . 12 12 200-Msg failed count: . . . 0 0 200-Msg rejected count:. . . 0 0 200-Msg discarded count: . . 0 0 200-Total retry count: . . . 0 0 200-Multiple retry count:. . 0 0 200-Duplicates count(bcast): 3 3 200-Duplicates count(ucast): 0 0 200-MAC congestion count:. . 0 0 200-End of MAC statistics ---------- 200 RF Medium status:. . . . IDLE (carrier NOT detected)
Airlink Error Detection	View Stats mac.stat.show Reset Stats mac.stat.zero >mac.stat.show 200-MAC statistics ---------- 200-Rx DATA messages:. . . . 15 15 200-Rx CTRL messages:. . . . 36 36 200-Rx TOTAL messages: . . . 51 51 200-Rx INVALID messages: . . 0 0 200-Tx DATA messages:. . . . 15 15 200-Tx CTRL messages:. . . . 36 36 200-Tx TOTAL messages: . . . 51 51 200-Msg success count: . . . 12 12 200-Msg failed count: . . . 0 0 200-Msg rejected count:. . . 0 0 200-Msg discarded count: . . 0 0 200-Total retry count: . . . 0 0 200-Multiple retry count:. . 0 0 200-Duplicates count(bcast): 3 3 200-Duplicates count(ucast): 0 0 200-MAC congestion count:. . 0 0 200-End of MAC statistics ---------- 200 RF Medium status:. . . . IDLE (carrier NOT detected)

5.8.2 Diagnostics – Remote Statistics

Parameter	CLI Command
Remote Stats	View Packets counts and PER remote.stat.show Reset Stats remote.stat.zero Example: >remote.stat.show 200---------- 200- This Unit 80:00:01 200---------- 200-Remote Pkt -----Received Packets------- -----Transmitted Packets---- 200-Units Type (Good) (Failed) (PER%) (Good) (Failed) (PER%)

```
200---------- ---- ---------- ---------- ------ ---------- ---------- ------
200- 80:00:05 uca  4          0          0.00   4          0          0.00
200-          bca  0          0          0.00   0          0          N/A
200- 80:00:04 uca  4          0          0.00   4          0          0.00
200-          bca  0          0          0.00   0          0          N/A
200- 80:00:03 uca  4          0          0.00   4          0          0.00
200-          bca  0          0          0.00   0          0          N/A
200--------------------------------------------------------------------------
200-Amount of entries   : 3
200 Remote Units Prefix : * (Entry learned through a relay point)
```

View Information above but include RSSI and SNR

```
remote.stat.show –v
```

Example:

```
remote.stat.show -v
200--------------------------------------------------------------------------
200-                    This Unit 80:00:01
200--------------------------------------------------------------------------
200-Remote    Pkt  -----Received Packets------- -----Transmitted Packets----
200-Units     Type (Good)     (Failed)   (PER%)  (Good)     (Failed)  (PER%)
200---------- ---- ---------- ---------- ------ ---------- ---------- ------
200- 80:00:05 uca  4          0          0.00   4          0          0.00
200-          bca  0          0          0.00   0          0          N/A
200-
200-last rx unicast tag   : 911
200-last rx broadcast tag : 0
200-next tx unicast tag   : 4004
200-next tx broadcast tag : 4003
200-attributes            : 0x000008d0
200-rssi                  : -50.77
200-snr                   : 34.96
200-
200- 80:00:04 uca  4          0          0.00   4          0          0.00
200-          bca  0          0          0.00   0          0          N/A
200-
200-last rx unicast tag   : 2156
200-last rx broadcast tag : 0
200-next tx unicast tag   : 4004
200-next tx broadcast tag : 4003
200-attributes            : 0x00000940
200-rssi                  : -50.80
200-snr                   : 33.04
200-
200- 80:00:03 uca  4          0          0.00   4          0          0.00
200-          bca  0          0          0.00   0          0          N/A
200-
200-last rx unicast tag   : 651
200-last rx broadcast tag : 0
200-next tx unicast tag   : 4004
200-next tx broadcast tag : 4003
200-attributes            : 0x000009a0
200-rssi                  : -50.74
200-snr                   : 36.13
200-
200--------------------------------------------------------------------------
200-Amount of entries   : 3
200 Remote Units Prefix : * (Entry learned through a relay point)
```

5.8.3 Diagnostics – SNMP

Parameter	CLI Command	Options
SNMP Agent Enable	ip.snmp.enable Example: set ip.snmp.enable= 1	0 = Disabled 1 = Enabled
Local IP Address	ip.snmp.local.interface Example: set ip.snmp.local.interface= "rf"	"auto" = Automatic "eth1" = Ethernet "rf" = RF
Read Community	ip.snmp.community.ro Example: set ip.snmp.community.ro= "ADMINISTRATOR"	"<pass phrase>"
Read-Write Community	ip.snmp.community.rw Example: set ip.snmp.community.rw= "ADMINISTRATOR"	"<pass phrase>"
Trap Community	ip.snmp.community.trap Example: set ip.snmp.community.trap= "ADMINISTRATOR"	"<pass phrase>"
Trap IP List	View List ip.snmp.show Add IP to List ip.snmp.add <ipaddress> Clear List ip.snmp.clear Delete IP Address from List ip.snmp.del <ipaddress> Examples: ip.snmp.add 192.168.50.84 ip.snmp.del 192.168.50.84 ip.snmp.show 200-192.168.50.200 200 192.168.50.84	
Forward Power Trap	radio.alarm.fwdPwr.enabled= 1 Example: set radio.alarm.fwdPwr.enabled= 1	0 = Disabled 1 = Enabled
Reverse Power Trap	radio.alarm.revPwr.enabled Example: set radio.alarm.revPwr.enabled= 1	0 = Disabled 1 = Enabled
PA Power Trap	radio.alarm.PwrState.enabled Example: set radio.alarm.PwrState.enabled= 1	0 = Disabled 1 = Enabled
Save	save	

5.8.4 Diagnostics – Online Diagnostics

Parameter	CLI Command	Options
On-line Diagnostics Interval	odm.period Example: set odm.period= 300	<seconds>
Version	odm.version Example: set odm.version= 3	1 = Computer Friendly 2 = User Friendly 3 = Device Manager

Local Copy Only	odm.localcopyonly Example: set odm.localcopyonly= 1	0 = Disabled 1 = Enabled
Identification	odm.v3_id Example: set odm.v3_id= 0	0 = IP Address 1 = RF MAC Address
Measurement	odm.v3_bitmap= 131071 set odm.v3_bitmap= <bitmap> <bitmap> can be entered in decimal or hex. To use hex prefix number with 0x. Example (Enable All): set odm.v3_bitmap= 0x1FFF9 Example (RSSI, SNR, Tx PER and Rx PER only): set odm.v3_bitmap= 0x10640 Example (Period only) set odm.v3_bitmap= 0x1	Bit 0 = Period Bit 1 = Reserved Bit 2 = Reserved Bit 3 = Temp (C) Bit 4 = Temp (F) Bit 5 = Supply Voltage Bit 6 = RSSI Bit 7 = Forward Power Bit 8 = Reverse Power Bit 9 = Rx PER Bit 10 = Tx PER Bit 11 = Alarms Bit 12 = QoS Bit 13 = Tx Pkts (Success) Bit 14 = Tx Pkts (Failed) Bit 15 = Rx Pkts Total Bit 16 = SNR
Save	save	

5.8.5 Diagnostics – Radio Log

Parameter	CLI Command	Notes
Generate Radio Log File	script trecos.cmd Example: script trecos.cmd	The trecos.cmd filename is case sensitive and must be all lower case.

5.9 Device Maintenance

5.9.1 Device Maintenance – Config Control

Parameter	CLI Command	Options
Save Configuration using this name	reg.export -o 0x80000000 * "*<filename.drp>*" Example: reg.export -o 0x80000000 * "Config1.drp"	The filename may be anything but should have the .drp extension to avoid the possibility of overwriting critical files in the Viper firmware. (Note: The filename used is case sensitive.)
Show list of Config files	ls *.drp Example: ls *.drp 200-ViperConfig12.drp 200-UserCfg_000A99800D3C.drp 200-WCP.drp 200-ViperConfig.drp	The filename used is case sensitive.
Import Configuration from	reg.import * "*<filename.drp>*" Example: reg.import * "Config1.drp"	The filename used is case sensitive.
Delete Configuration	rm <filename> Example: rm Config1.drp	The filename used is case sensitive. (Warning: The rm command can be used to delete critical files. Take care to delete only config files with the .drp extension.)
Restore factory defaults	Enter all the following commands to restore the radio to factory defaults: default * neighbor clear wcpsec.logout wcpsec.login ADMINISTRATOR wcpsec.logout vpn.reset _password <CurrentPassword> ADMINISTRATOR _password <CurrentPassword> ADMINISTRATOR save	
Save	save	

5.9.2 Device Maintenance – Package Control

Parameter	CLI Command	Notes
Check Firmware Integrity	vpkg –e distrib.pkg Example: vpkg –e distrib.pkg 200-Package Name: distrib.pkg 200-Minor: 8 200-Major: 3 200 Package distrib.pkg is valid	Command is case sensitive.
Radio Firmware Upgrade	radio.upload.firmware.binary –f vipr_radio.bin Example: radio.upload.firmware.binary –f vipr_radio.bin 200-OK. 200 Done	Command is case sensitive.

5.9.3 Device Maintenance – Wing Commander

Parameter	CLI Command	Options
WCP Login	wcpsec.login <password> Example: wcpsec.login Admin12345 Example (Default login – restores default WC parameters): wcpsec.login ADMINISTRATOR	<password> = any valid password <password> = ADMINISTRATOR (Resets Wing Commander values to defaults.)
Set WCP Password	wcpsec.login.set <NewWCPPassword> Example: wcpsec.login.set Admin12345	
Set Data Key Strength	wcpsec.strength.set <keystrength> Example: wcpsec.strength.set 128	<keystrength> = 128 = 192 = 256
Set Data Key	wcpsec.key.set <DataKey> Data Key can be entered in ASCII or HEX. To enter in HEX prefix the key with 0x. Example (Set ASCII Based Key): wcpsec.key.set 1093H$%019245lkj Example (Set Hex Based Key) wcpsec.key.set 0xABCDEF1234567890ABCDEF1234567890	
WCP Logout	wcpsec.logout	
Multicast Group	wcp.multicast.group Example: set wcp.multicast.group= 239.192.0.1	<multicastIP>
Local Port	wcp.local.port Example set wcp.local.port= 7010	<PortNumber>

Forward WC Traffic to RF Network	vts.6.enable Example: set vts.6.enable= 1	0 = Disabled 1 = Enabled
Save	save	

5.10 Troubleshooting & Diagnostics

5.10.1 Flight Recorder & Faults

The flight recorder in the Viper radio records all errors and alarms in non-volatile memory. The flight recorder can be viewed and cleared with the following commands.

The following command displays the contents of the flight recorder.

```
flr.show
```

Example:

```
>flr.show
200-[1  2007-10-01 12:00:16 34.419  30°F]
200-stationReset: board hard reset
200-[2  1970-01-01 00:00:00 8.509]
200-HARD-RESET
200-[3  2007-10-01 12:00:52 72.882  32°F]
200-stationReset: board hard reset
200-[4  2007-10-01 12:07:25 434.48  30°F]
200-stationReset: board hard reset
```

The following clears the contents of the flight recorder log.

Example:

```
flr.format
```

The following command displays complete list of potential faults and indicates which faults have been detected since the last reset.

```
fault.display
```

After each fault the following will be displayed:

- --- Means the fault was not detected
- IND Means the fault was detected or indicated and is still present
- HND Means the fault was detected, but was handled or corrected and is no longer present
- ACK Means the fault was detected then acknowledged by the user.

Example

```
>fault.display
200- IND  Description                                        Status
200------ ------------------------------------------------- ------
200-0     Board temperature is outside allowed range         ---
200-0     Board input power failure                          ---
200-0     Test jumpers are installed                         ---
200-0     Setup Port Connected                               ---
200-0     Setup Port Disconnected                            ---
200-0     Data Port Connected                                ---
200-0     Data Port Disconnected                             ---
200-0     FPGA PLL Unlocked                                  ---
200-0     Shutdown request                                   ---
200-0     Software Watch-Dog                                 ---
200-0     Power On Self Test FAILURE                         ---
```

```
200-0     ViPR default note                                  ---
200-0     ViPR default warning                               ---
200-0     ViPR configuration mismatch                        ---
200-0     DSP sanity check failure                           ---
200-0     DSP not ready after reset & s/w download           ---
200-0     DSP load error: file, code and/or params           ---
200-0     DSP RX Clock alarm                                 ---
200-0     DSP TX Clock alarm                                 ---
200-0     DSP RX Proc Overflow alarm                         ---
200-0     DSP TX Proc Underflow alarm                        ---
200-0     DSP watchdog alarm                                 ---
200-0     DSP external h/w alarm                             ---
200-0     DSP power supply alarm                             ---
200-0     DSP anti-hack alarm                                ---
200-0     Radio does not respond to sanity check             ---
200-0     Radio not ready after reset                        ---
200-0     Radio receiver tuning failure                      ---
200-0     Radio EEPROM failure                               ---
200-0     Radio DCXO failure                                 ---
200-0     Radio RX synthesizer lock failure                  ---
200-0     Radio TX synthesizer lock failure                  ---
200-0     Radio local power failure                          ---
200-0     Radio reference clock failure                      ---
200-0     Radio RX clock failure (FPGA watchdog)             ---
200-0     Radio frame sync failure                           ---
200-0     FPGA RX clock PLL unlocked                         ---
200-
200-End of fault report
```

5.10.2 Other Diagnostics Commands

The table below lists some additional diagnostic commands that are less frequently used. The commands are listed below, but not discussed in depth. Many of the following commands will contain two columns of information for each diagnostic. In these situations, the left hand column is the most recent data. The right hand column shows the stats from the last time the command was executed. In this way the user can easily see the change from the previous command execution to this the current time.

CLI Command	Description
`log.show`	Displays Viper log
`dsp.stat.show`	Shows packet capture stats as recorded by the modems DSP
`eth.stat.show`	Show Ethernet packet counter from LAN interface
`physpeed.status.show`	Shows current datarate used by RF interface when using multispeed
`oip.context.show`	List which remotes have TCP proxy enabled
`oip.buffer.status`	Instantaneous list of the number of packets buffered in the OIP (optimized IP) layer.
`oip.proxy.buffer.status`	TCP proxy related buffer status
`stat *`	Packet counters from modules throughout the Viper.

6 A.1 Example Script File #1

The script file below shows the most commonly used basic configuration commands. The comments may be removed to reduce the file size if the file will be uploaded over the air.

```
################################################################################
#Sample Setup Script
#This script sets up the Basic Viper settings and must be run first!!
#
#      Settings Included in the Script:
#             1) Bridge/Router Mode, Relay Point
#             2) Ethernet & RF IP Addresses and Netmasks
#             3) Channel Frequencies, Data Rate, Tx Power
#             4) Serial Port Settings
#             5) MAC Retries, Over-the-air RTS Threshold, Carrier Sense Level
#             6) Encryption Settings
#             7) SNMP Settings
#
#The '#' sign is used to denote comments.
#
#Any of the commands described below can be individually executed directly on the
#Viper Command Line Interface (CLI.)
#
#This script can be executed by loading the script file into DeviceOutlook and then
#sending the script file to the radio or radios for execution.
#
#Alternately, this script can be uploaded to a Viper using any FTP program.
#The script can then be executed by opening a telnet session with the Viper then
#executing the command:  script filename.ext
#
#Example:
#           script Viper_Basic.txt -c
#
#
#When the -c option is placed at the end of the command, if an error occurs the script will
#continue with the next command.  When the -c option is not included, if an error occurs with
#the script, the script will terminate immediately and an error message will be reported.
#
#If the script executes to the end the Viper will reset to activate the new settings.
################################################################################



################################################################################
#Return Viper to Default Settings before configuring Viper
#
#default <setting>
#
#Example:
#default ip.eth.1.address         (Sets Ethernet IP Address to default)
#
#default ts.com.2.*               (Sets all settings in the Com port to the default)
#
#default *                        (All Viper settings are set to the default)
################################################################################

default *

################################################################################
#Out of box setting
#station.outofthebox:      0 = Viper is programmed and ready to Tx and Rx
#                          1 = Viper is in the default configuration and is not
```

```
#                                ready to Tx or Rx
#
#Changing this setting to 0 is equivalent to pressing the 'Done' button in the Setup Wizard.
###############################################################################################

set station.outofthebox = 0

###############################################################################################
#Select Unit Name
#id.stationName                  Enter in the Unit's Name
#
#Select Bridge Mode or Router Mode
#ip.forwarding.mode              1 = Bridge
#                                2 = Router
#
#oip.bridge.forwardAll.enable    0 = Forward IP & ARP Types Only (Applies to Bridge Mode Only)
#                                1 = Forward Everything (Applies to Bridge Mode Only)
#
#oip.defaultGateway.enable       0 = Access Point disabled
#                                1 = Access Point enabled
#
#station.relaypoint              n = no
#                                y = yes
#
#cwid.enable                     0 = CWID disabled (Continous Wave Identification)
#                                1 = CWID enabled (Continous Wave Identification)
#cwid.callsign                   Call Sign for CWID transmissions
#cwid.interval                   Interval between CWID transmissions in minutes
###############################################################################################

set id.stationName = Test
set ip.forwarding.mode = 2
set oip.bridge.forwardAll.enable = 1    #(Applies to Bridge Mode Only)
set oip.defaultGateway.enable = 0
set station.relaypoint = n
set cwid.enable = 0


###############################################################################################
#Ethernet Interface
#ip.eth.1.dhcp.clnt.enable       0 = DHCP Client Disabled (Static)
#                                1 = DHCP Client Enabled    (Dynamic)
#
#ip.eth.1.addr                   IP Address of the Ethernet Interface
#ip.eth.1.netmask                Subnet Mask of the Ethernet Interface
#
#set ip.eth.1.dhcp.srv.enable                0 = DHCP Server Disabled
#                                            1 = DHCP Server Enabled
#
#ip.eth.1.dhcp.srv.addr.start                IP Address of first address to use for leasing
#ip.eth.1.dhcp.srv.lease.max                 Max number of leases to issue.
#ip.eth.1.dhcp.srv.lease.duration            Lease duration in minutes.
#                                            0 = infinite
#ip.eth.1.dhcp.srv.gateway.override          DHCP gateway if something other than Viper radio
#ip.eth.1.dhcp.srv.gateway.useOverride       0 = Use Viper IP as default gateway
#                                            1 = Use Override value
#
#
#ip.eth.1.enable                 0 = Ethernet Interface on radio is Disabled
#                                1 = Ethernet Interface on radio is Enabled
#ip.eth.1.mtu                    Maximum packet size for Ethernet interface in bytes
#ip.eth.1.phy.mode               0 = Auto negotiate
#                                1 = Full Duplex only
```

```
#                                2 = Half Duplex only
#ip.eth.1.phy.speed             0 = Auto negotiate
#                                1 = 100Mbps only
#                                2 = 10Mbps only
#
#id.router.addr= <ip address>          Maintenance IP Address.  This address is only
#                                      accessible when connected locally to the Viper.
#id.router.netmask= <netmask>          Maintenance netmask
##############################################################################################

set ip.eth.1.dhcp.clnt.enable = 0
set ip.eth.1.addr = 192.168.205.1
set ip.eth.1.netmask = 255.255.255.0
set ip.eth.1.dhcp.srv.enable = 1
set ip.eth.1.enable = 1

set id.router.addr= 1.1.1.1
set id.router.netmask= 255.255.255.0

##############################################################################################
#RF Interface
#ip.rf.addr.override       IP Address of RF Interface
#                          (Set to 0.0.0.0 to use factory Default RF IP Address)
#
#ip.rf.netmask             Subnet Mask of RF Interface
#
#ip.rf.enable              0 = RF interface is disabled
#                          1 = RF interface is enabled
#ip.rf.mac                 (read only)   Returns current RF MAC that is in use
#ip.rf.mac.factory         (read only)   Returns factory default RF MAC
#ip.rf.mac.inuse           (read only)   "override" = User configured RF MAC is in use
#                          "factory" = Factory default RF MAC is in use
#
#ip.rf.mac.override        Sets custom RF MAC address
#                          Can enter in following formats:
#                                Decimal:     1451841
#                                Hex:         0x800001
#                                Set to 0 to use factory default value.
#
#ip.rf.mtu                 Maximum packet size to transmit over RF.
#                          Larger packets will be broken into fragments.
#
##############################################################################################

set ip.rf.addr.override = 10.0.2.3
set ip.rf.netmask = 255.255.0.0
set ip.rf.enable = 1
set ip.rf.mac.override = 0x800001

##############################################################################################
#Set Frequencies and Bandwidth
#
#radio.activechannel              (1-32) Selects the current channel that the Viper
#                                 will operate on.
#                                 (Should always be set to 1 for normal operation.)
#
#radio.channel.01.channeltype     0 = 6.25kHz Channel @ 4kbps
#                                 1 = 6.25kHz Channel @ 8kbps
#                                 2 = 12.5kHz Channel @ 8kbps
#                                 3 = 12.5kHz Channel @ 16kbps
#                                 4 = 25.0kHz Channel @ 16kbps
#                                 5 = 25.0kHz Channel @ 32kbps
#                                 6 = 6.25kHz Channel @ 12kbps
```

```
#                                7 = Reserved for future use
#                                8 = 12.5kHz Channel @ 24kbps
#                                9 = 12.5kHz Channel @ 32kbps
#                                10 = 25.0kHz Channel @ 48kbps
#                                11 = 25.0kHz Channel @ 64kbps
#
#                                50kHz Channels for VHF, 200MHz, and UHF models
#                                12 = 50.0kHz Channel @ 32kbps
#                                13 = 50.0kHz Channel @ 64kbps
#                                14 = 50.0kHz Channel @ 96kbps
#                                15 = 50.0kHz Channel @ 128kbps
#
#                                ETSI Compliant Channels
#                                16 = 12.5kHz Channel @ 8kbps
#                                17 = 12.5kHz Channel @ 16kbps
#                                18 = 12.5kHz Channel @ 24kbps
#                                19 = 25.0kHz Channel @ 16kbps
#                                20 = 25.0kHz Channel @ 32kbps
#                                21 = 25.0kHz Channel @ 48kbps
#
#                                50kHz Channels for 900 MHz models
#                                22 = 50kHz Channel @ 32kbps
#                                23 = 50kHz Channel @ 64kbps
#                                24 = 50kHz Channel @ 96kbps
#                                25 = 50kHz Channel @ 128kbps
#
#                                100kHz Channels for 200 MHz and 900 MHz models (Viper SC+ only)
#                                26 = 100kHz Channel @ 64kbps
#                                27 = 100kHz Channel @ 128kbps
#                                28 = 100kHz Channel @ 192kbps
#                                29 = 100kHz Channel @ 256kbps
#
#
#radio.channel.01.rxFreq                Receive frequency for channel 1
#
#radio.channel.01.txFreq                Transmit frequency for channel 1
#
#radio.channel.01.txPowerLevel          Transmit Power level for channel 1
################################################################################################

set radio.activechannel = 1
set radio.channel.01.channelType = 3
set radio.channel.01.rxFreq = 462.225000
set radio.channel.01.txFreq = 467.225000
set radio.channel.01.txPowerLevel = 10.0



################################################################################################
#Serial Ports Setup
#ts.com.1.xxx       Serial Port 1 is the Setup Port
#ts.com.2.xxx       Serial Port 2 is the Com Port
#
#ts.com.x.baudrate: Select a valid baudrate (300, 1200, 4800, 9600, or 19200 for Setup Port)
#                                (300, 1200, 4800, 9600, 19200, 38400, 57600, or
#                                115200 for Com Port)
#
#ts.com.x.dataBits:        Number of databits (7 or 8)
#
#ts.com.x.stopBits:        Number of stopbits (1 or 2)
#
#ts.com.x.parity:          0 = No Parity
#                          1 = Odd Parity
```

```
#                           2 = Even Parity
#
#ts.com.x.dcdCtrl:          0 = DCD is Never Asserted (DCD: Data Carrier Detect)
#                           1 = DCD is Always Asserted
#                           2 = DCD in Envelope Mode
#
#ts.com.x.idleChar:         Packet Forwarding Threshold (2-8)
#
#ts.com.x.flowCtrl:         0 = No Flow Control
#                           1 = CTS Based Flow Control
#
#ts.com.x.connectionCtrl:   0 = Permanent (3-wire) Connection Control
#                           1 = Switched (DTR bringup/teardown) Connection Control
#
#ts.com.x.service:          0 = CLI (BSC/GCU)
#                           1 = Serial/RF bridge
#                           2 = Online diagnostics
#                           3 = Custom (BSC/GCU)
#                           4 = Reserved
#                           5 = Serial/RF bridge RTS/CTS Mode
#
#ts.com.x.mode:             Mode of Operation (ts.com.x.service must be equal to 3
#                           (custom) before changing this parameter)
#                           0 = Disabled
#                           1 = TCP Server
#                           2 = TCP client
#                           3 = UDP
#                           4 = TCP Client/Server Mode
#ts.com.x.local.address           Local IP Address
#ts.com.x.local.port              Local Port Number
#ts.com.x.remote.address          Remote IP Address
#ts.com.x.remote.port             Remote Port Number
#ts.com.x.tcpKeepaliveTimeoutMin  0 = Keepalive is disabled
#                                 1 -1440 = # of minutes between Keepalive messages
################################################################################################

set ts.com.2.baudrate = 4800
set ts.com.2.dataBits = 8
set ts.com.2.stopBits = 1
set ts.com.2.parity = 2
set ts.com.2.dcdCtrl = 2
set ts.com.2.idleChar = 4
set ts.com.2.flowCtrl = 0
set ts.com.2.connectionCtrl = 0
set ts.com.2.service = 3
set ts.com.2.mode = 1
set ts.com.2.local.address = 0.0.0.0
set ts.com.2.local.port = 6278
set ts.com.2.remote.address = 10.255.255.255
set ts.com.2.remote.port = 6278
set ts.com.2.tcpKeepaliveTimeoutMin = 0

################################################################################################
#RF Optimizations
#Mac.Dup.Detection.Period:       Duplicates Detection Period (ms) (1000-15000)
#Mac.Retries:                    Number of Retries by MAC
#Mac.RtsThreshold:               Over the Air RTS Threshold (bytes) (0 - RF_MTU)
#dsp.par.setup.csLevel:          Carrier Sense Threshold in dBm
#Mac.CsOverride:                 Listen Before Transmit
#                                       0 = Enabled (listen to noise and data)
#                                       1 = Enabled (listen to data only)
#                                       2 = Disabled
################################################################################################
```

```
set Mac.Dup.Detection.Period = 5000
set Mac.Retries = 2
set Mac.RtsThreshold = 128
set dsp.par.setup.csLevel = -110.000000
set Mac.CsOverride = 0


################################################################################
#Encryption Control
#
#oip.encryption.enable:          0 = Encryption Disabled
#                                1 = Encryption Enabled
#
#oip.encryption.phrase:          Encryption Pass Phrase
#
################################################################################

set oip.encryption.enable = 1
set oip.encryption.phrase = Dataradio


################################################################################
#SNMP Settings
#
# ip.snmp.enable:                0 = SNMP Disabled
#                                1 = SNMP Enabled
#
#ip.snmp.show                    Returns a list showing what IP Addresses are currently
#                                programmed into the SNMP Trap IP list
#
#ip.snmp.clear                   Clears the SNMP Trap IP list
#
#ip.snmp.add <ip_address>        Add an IP Address to the SNMP Trap IP list
#
#ip.snmp.del <ip_address>        Delete an IP Address from the SNMP Trap IP list
#
# radio.alarm.fwdPwr.enabled:    0 = Forward Power Alarm & Notification Disabled
#                                1 = Forward Power Alarm & Notification Enabled
#
# radio.alarm.revPwr.enabled:    0 = Reverse Power Alarm & Notification Disabled
#                                1 = Reverse Power Alarm & Notification Enabled
#
# radio.alarm.PwrState.enabled:  0 = PA Power Alarm & Notification Disabled
#                                1 = PA Power Alarm & Notification Enabled
################################################################################

set ip.snmp.enable =  1

ip.snmp.clear
ip.snmp.add 192.168.205.200
ip.snmp.add 192.168.205.201

set radio.alarm.fwdPwr.enabled = 1
set radio.alarm.revPwr.enabled = 1
set radio.alarm.PwrState.enabled = 1


################################################################################
#Note: Password Setup
#
# _password <old_password> <new_password>
#                                <old_password>: The old password.
```

```
#                                <new_password>: The new password.
#                                The minimum password length is 8 characters
#                                The maximum password length is 15 characters
#                                This command must be sent twice to update password
#
#
#Example:
#       _password ADMINISTRATOR MyNewPassword
################################################################################################

_password ADMINISTRATOR MyNewPassword
_password ADMINISTRATOR MyNewPassword


################################################################################################
#Save all Settings
#Perform a Station Reset so settings will take affect
#
#save                       saves all parameters into permanent memory
#
#stationreset               resets the Viper radio immediately
#
#station.autoreset.timeout.minutes      Number of minutes between automatic resets
#                                       Minimum = 10 minutes
#station.autoreset.enable               0 = Automatic station reset disabled
#                                       1 = Automatic Station reset enabled
#
#When executing a script with DeviceOutlook, the user must use the auto reset function to
#reset the Viper.  If the stationreset command is used, the Viper radio will shutdown before
#telling DeviceOutlook that the script executed successfully.  As a result, DeviceOutlook
#will think the script execution has failed.
#
#To use the auto station reset command properly execute the following commands in order:
#       1) save
#       2) set station.autoreset.timeout.minutes = 10
#       3) set station.autoreset.enable = 1
#       4) <end of script>
#
#Executing the three commands above, in the specified order will do the following:
#       1) Save all previously programmed parameters into permanent memory.
#       2) Setup the auto reset time to trigger in 10 minutes
#       3) Enable the auto reset timer.
#       The auto reset time will be enabled immediately, but the setting will not be
#       permanently saved into memory, since the save command was executed before these
#       two parameters are set.  As a result, the Viper radio will reset once, then the
#       auto reset parameters we revert to their previous settings - which is off by default.
################################################################################################

save
set station.autoreset.timeout.minutes = 10
set station.autoreset.enable = 1
#End of Script

################################################################################################
#Include a # sign at the end of the script.  This will force the script to contain a new
#line so the last executable command will have a carriage return/line feed to terminate
#the command.
################################################################################################
```

7 B.1 Example Script File #2

The script file below shows a simple script to configure the Com port. The script is short, only touches a small number of parameter and contains a minimal number of comments.

```
################################################################################################
#Sample Setup Script 2
################################################################################################

set ts.com.2.baudrate = 4800
set ts.com.2.dataBits = 8
set ts.com.2.stopBits = 1
set ts.com.2.parity = 2
set ts.com.2.dcdCtrl = 2
set ts.com.2.idleChar = 4
set ts.com.2.flowCtrl = 0
set ts.com.2.connectionCtrl = 0
set ts.com.2.service = 3
set ts.com.2.mode = 1
set ts.com.2.local.address = 0.0.0.0
set ts.com.2.local.port = 6278
set ts.com.2.remote.address = 10.255.255.255
set ts.com.2.remote.port = 6278
set ts.com.2.tcpKeepaliveTimeoutMin = 0

save
stationreset

#End of Script
```